

a set of claims

1. A method for planning construction of a brick wall made by a dry type of construction method, in which the brick wall is constructed from bricks, bolts, nuts and metal plates and in which the bricks are integrally assembled under pre-stress by tightening forces of the bolts and nuts,

5 wherein the brick has a planar dimensional proportion which is 1:2 in an aspect ratio, a bolt hole with a diameter smaller than an external diameter of said nut vertically extends through a center of a first square half part of said brick, a hollow section for containing the nut vertically 10 extends through a center of a second square half part of said brick, and said bolt has an overall length for fastening the vertically adjacent two bricks, comprising the steps of:

15 specifying a grid pattern XY coordinate system forming a number of square grid units, each of the grid units substantially conforming to a planar size of the square half part of said brick, and setting odd number layer tightening grids ( $\alpha$ ) and even number layer tightening grids ( $\beta$ ) alternately in each of X- and Y- directions;

20 setting an arbitrary grid unit, to which an end part of the brick wall is allotted, to be a reference grid ( $\gamma$ );

25 positioning the brick of the end part of the brick wall on said reference grid for allocating the bricks in the odd number layer so as to match said first square half part to said odd number layer tightening grid, and successively arraying the bricks of the odd number layer from the brick on the reference grid, as well as positioning the brick of the end part of the brick wall on said reference grid for allocating the bricks in the even number layer so as to match said first square half part to said even number layer tightening grid, and successively arraying the bricks of the even number layer from the brick on the reference grid; and

arraying said metal plates for allocation of the plates on the  
bricks of said odd number layer so that at least one bolt hole of the plate  
is positioned on said odd number layer tightening grid, as well as  
arraying the metal plates for allocation of the plates on the bricks of said  
5 even number layer so that at least one bolt hole of the plate is positioned  
on said even number layer tightening grid.

2. A method as defined in claim 1, wherein said metal plate has two,  
three, four or five bolt holes, which are spaced from each other, a  
distance corresponding to the planar dimension of said square half part.

10 3. A method as defined in claim 1 or 2, wherein said nuts for the  
bricks of the odd number layer are allotted to the bolt holes of said metal  
plates located on the odd number layer, and the nuts for the bricks of the  
even number layer are allotted to the bolt holes of said metal plates  
located on the even number layer.

15 4. A method as defined in one of claims 1 to 3, wherein a corner of  
the brick wall is allotted to said grid, so that the said reference grid ( $\gamma$ )  
is determined.

5. A method as defined in one of claims 1 to 4, wherein quantities  
of the bricks, the bolts, the nuts and the metal plates are estimated, based  
20 on the number of grids locating along the brick wall.

6. A brick wall of a building which is constructed in accordance  
with the brick allocation and the plate allocation determined by the  
method as defined in one of claims 1 to 5, so that said bolts and nuts are  
contained in said bolt holes and said hollow sections.

25 7. A brick allocating program for causing a computer to function so  
as to make a brick layout drawing for construction of a brick wall with  
respect to the brick wall made by a dry type of construction method, in  
which the brick walls are constructed from bricks, bolts, nuts and metal

plates and in which the bricks are integrally assembled under pre-stress by tightening forces of the bolts and nuts, wherein the program causes the computer to function as:

grid coordinate system display means for displaying on a display,

5 a grid pattern XY coordinate system constituted from square grids, each corresponding to the planar size of a square half part of the brick;

brick allocation model production means for producing brick allocation model data of an odd number layer and an even number layer which are adapted for said grids, based on information of a wall structure  
10 and an opening on an architectural design drawing inputted to said XY coordinate system;

brick layout drawing data production means for automatically producing brick layout drawing data from said brick allocation model data; and

15 drawing data output means for outputting said brick layout drawing data as a working drawing for construction.

8. A program as defined in claim 7, causing the computer to function as means for producing layout drawing data for allocating the bolts, the nuts and the metal plates, which automatically produces the  
20 layout drawing data of the bolts, the nuts and the metal plates on the basis of said brick allocation model data.

9. A program as defined in claim 7 or 8, wherein said grid coordinate system display means causes the computer to display a plan of said architectural design drawing on the said XY coordinate system.

25 10. A program as defined in one of claims 7 to 9, causing the computer to function as material quantities summing means for summing up the quantities of the bricks, the bolts, the nuts and the metal plates on the basis of said brick allocation model data.

11. A program as defined in claim 8, causing the computer to function as individual revision means for displaying a peculiar portion inconsistent with a rule for automatically producing said brick layout drawing data in said brick layout drawing data production means, and 5 enabling a manual revision or input of the allocation of the bricks, the bolts , the nuts and the metal plates in said peculiar portion.

12. A brick allocating system for making a brick layout drawing for construction of a brick wall with respect to the brick wall made by a dry type of construction method, in which the brick walls are constructed 10 from bricks, bolts, nuts and metal plates and in which the bricks are integrally assembled under pre-stress by tightening forces of the bolts and nuts, comprising:

15 a display device for displaying a grid pattern XY coordinate system constituted from square grids, each corresponding to the planar size of a square half part of the brick;

an input device for inputting information of a wall structure and an opening on an architectural design drawing, to said XY coordinate system;

20 a data processing device producing brick allocation model data for an odd number layer and an even number layer, which are adapted for the grids, and automatically producing brick layout drawing data based on said brick allocation model data;

a storage device for storing said brick allocation model data and said brick layout drawing data; and

25 an output device for outputting said brick layout drawing data as a working drawing for construction.

13. A system as defined in claim 12, wherein said data processing device automatically produces layout drawing data of the bolts, the nuts

and the metal plates from said brick allocation model data;

    said storage device stores said layout drawing data of the bolts, the nuts and the metal plates; and

    said output device outputs said layout drawing data of the bolts, 5 the nuts and the metal plates as a working drawing for construction.

14.     A system as defined in claim 12 or 13, wherein said data processing device sums up quantities of the bricks, the bolts, the nuts and the metal plates on the basis of said brick allocation model data;

    said storage device stores the quantities of the bricks, the bolts, 10 the nuts and the metal plates; and

    said output device outputs data of the quantities of the bricks, the bolts, the nuts and the metal plates.

15.     A system as defined in one of claims 12 to 14, wherein said data processing device sets odd number layer tightening grids ( $\alpha$ ) and even 15 number layer tightening grids ( $\beta$ ) alternately in each of X- and Y-directions; sets a grid unit on the XY coordinate system to which an end part of the brick wall is allotted, to be a reference grid ( $\gamma$ ); successively arrays the bricks of the odd number layer from the brick on the reference grid in such a manner that a first half part of the brick with a bolt hole 20 matches the odd number layer tightening grid; and successively arrays the bricks of the even number layer from the brick on the reference grid in such a manner that said first half part matches the even number layer tightening grid.

16.     A system as defined in claim 13 or 14, wherein said data 25 processing device arrays the metal plates of the odd number layer so that at least one bolt hole of the plate is positioned on said odd number layer tightening grid, and arrays the metal plates of the even number layer so that at least one bolt hole of the metal plate is positioned on said even

number layer tightening grid.